

## **Abstract**

A system and method for generating an electronic model for a dental impression having a common coordinate system. The system includes two scanning apparatus for positioning physical objects within a scanning device when generating an electronic model corresponding to each of the physical objects; a data processing system for processing the electronic models corresponding to each of the physical objects to possess polygonal mesh representations of the physical objects within a common coordinate system. The scanning apparatus comprises a scanning base plate module for coupling the scanning apparatus to the scanning device and a physical model plate module to coupling the physical object to the scanning base plate module within a coordinate system of the scanning device. The scanning apparatus are used to mount physical models onto corresponding scanning apparatus, the scanning apparatus positions the physical models within a coordinate system of a scanning device. When the scanning are coupled to the scanning device, the system generates an electronic model for each physical model, the electronic models correspond to polygonal mesh representations of scanned position data; positions each of the scanning apparatus into a desired position in which the physical models are positioned relative to each other as the objects corresponding to the physical models interact with each other to generate a composite scanning apparatus; scans a reference point on one or more scanning apparatus within the combined scanning apparatus that are not coupled to the scanning device; and transforms the electronic models corresponding to the objects having scanning apparatus not coupled to the scanning device to generate a composite electronic models in a common coordinate system